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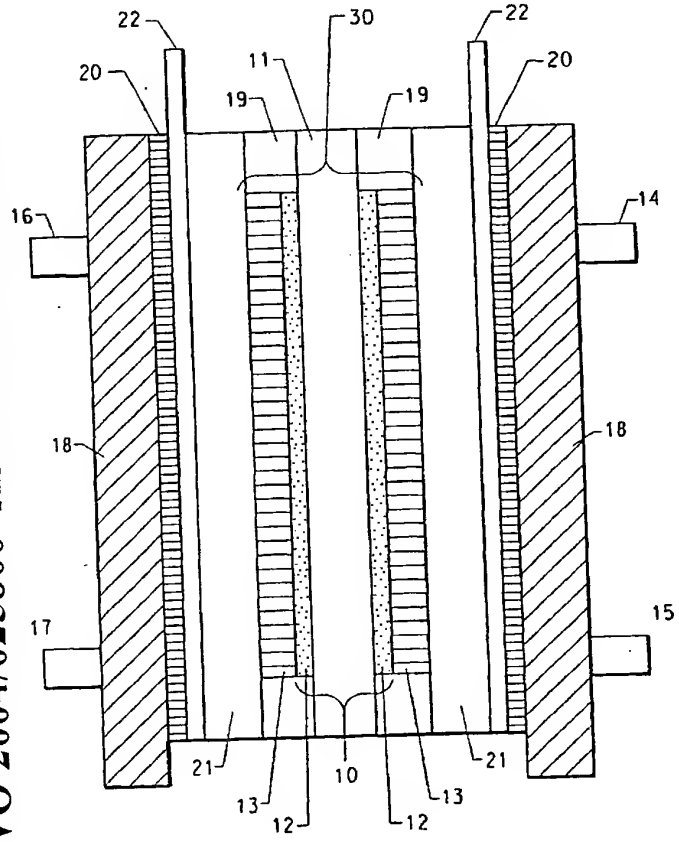
(54) Title: MEMBRANES FOR FUEL CELLS



(57) Abstract: The invention provides a direct methanol fuel cell comprising:(a) a solid fluorinated polymer electrolyte membrane having an ion exchange ratio (IXR) of at least about 17, wherein the solid polymer electrolyte membrane has a first surface and a second surface; and (b) at least one catalyst layer present on each of the first and second surfaces of the solid polymer electrolyte membrane; wherein the fuel cell is operated at a temperature of less than 60 °C; and wherein the methanol cross-over rate is reduced by at least about 20 %; and the power output is equal to or increased up to about 15%, versus a fuel cell comprising a solid fluorinated polymer electrolyte membrane having the same thickness, and an ion exchange ratio (IXR) of about 15.

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